UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,368	12/11/2001	Alex Wah Hin Yeung	506822000100	2730

25224 7590 04/11/2003

MORRISON & FOERSTER, LLP
555 WEST FIFTH STREET
SUITE 3500
LOS ANGELES, CA 90013-1024

EXAMINER	
JONES, DAMERON	

ART UNIT	PAPER NUMBER
1616	10

DATE MAILED: 04/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/020,368	YEUNG, ALEX WAH HIN	
	Examiner	Art Unit	
	D. L. Jones	1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

RESPONSE TO APPLICANT'S ARGUMENTS

1. The Applicant's arguments filed 1/9/03 (Paper No. 9) to the rejection of claims 1-20 made by the Examiner under 35 USC 102, 103, and/or 112 have been fully considered and deemed persuasive-in-part for the reasons set forth below.

112 Rejections

I. The 112 rejection of claim 13 is WITHDRAWN.

II. Applicant's arguments with respect to claims 1-20 as they relate to "disease" have been considered but are moot in view of the new ground(s) of rejection below.

102 Rejections

The 102 rejections are WITHDRAWN for reasons of record in Applicant's response.

103 Rejections

The rejection of claims 1, 14, and 19 under 35 USC 103(a) as being unpatentable over Lemelson (US Patent No. ~~4,665,97~~ 4,665,897) is MAINTAINED for reasons of record in the office action mailed 9/4/02, Paper No. 6.

Applicant asserts that while the title of Lemelson is directed to compositions and methods of detecting and treating cancer, the reference is limited to imaging techniques.

First, Applicant is reminded that a reference is not limited to its preferred embodiments or examples. Secondly, review of the Lemelson reference discloses the following. (1) Treatment radiation may include atomic disintegration of a small quantity of a nuclide (e.g., boron-10) which disintegrates resulting in the generation of high

velocity particles capable of localized destruction of diseased cells such as cancer (see abstract). (2) One aspect of Lemelson is to provide a method of treating a tumor with radiation which is generated at the site of the tumor and is so limited in intensity or effect that little, if any, normal tissue cells are detrimentally affected or destroyed (column 3, lines 32-37). (3) Another aspect of Lemelson is to provide a method of treating a tumor by incrementally destroying the cells of the tumor with radiation generated intermittently at the tumor site (column 3, lines 38-41). (4) Still another aspect of Lemelson is to provide a method of treating and destroying a tumor or malignancy by the repeated application of radiation generated at the site of the malignancy in such a manner as to optimize the treatment and minimize the destruction or deterioration of normal cells (column 3, lines 42-47). Hence, it would have been obvious to a skilled practitioner in the art using the teachings of Lemelson to use a composition that may be complexed with carbon-11 or nitrogen-13 (see columns 7, lines 61-68 and column 8, lines 36-57) for treatment purposes.

NEW GROUNDS OF REJECTION

112 First Paragraph Rejection

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for renal cell carcinoma, does not reasonably provide enablement for all other diseases. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

There are several guidelines when determining if the specification of an application allows the skilled artisan to practice the invention without undue experimentation. The factors to be considered in determining what constitutes undue experimentation were affirmed by the court in *In re Wands* (8 USPQ2d 1400 (CAFC 1986)). These factors are the quantity of experimentation; the amount of direction or guidance presented in the specification; the presence or absence of working examples; the nature of the invention; the state of the prior art; the level of skill of those in the art; predictability or unpredictability of the art; and the breadth of the claims. In particular, the specification fails to enable the skilled artisan to practice the invention without undue experimentation wherein any disease other than renal cell carcinoma occurs.

The disclosure of the present invention is directed to a method of treating a disease in a subject comprising administering a therapeutically effective amount of a positron-emitting compound (compound labeled with 18Fluorine, 11Carbon, 13Nitrogen, or 15Oxygen). While a skilled artisan would be motivated to apply the labeled compound to renal cell carcinoma, the artisan would not know what other diseases Applicant is referring to which would be compatible with the instant invention. Hence, a skilled artisan in the art would not be able to readily ascertain the unlimited number of

possible diseases encompassed by the instant invention. Thus, the skilled artisan would be forced to randomly test various diseases in order to determine which diseases would have similar results as that obtained when using a labeled positron emitting compound for renal cell carcinoma. Hence, the relative skill required to determine possible diseases treatable with the positron compound is high. Furthermore, the amount of guidance present in the specification fails to present the necessary instruction to determine which diseases are encompassed by the claims.

The specification does not provide guidance as to any other diseases treatable with a positron emitting compound as set forth in independent claim 1, nor does the specification disclose specific data in order that one may determine possible diseases for which the instant invention would be usable. The claims are very broad and read on any possible disease. A single working example has been provided to disclose that renal cell carcinoma is a treatable disease. Thus, information on other possible diseases treatable with the positron-emitting compound is absent. Without such information, one skilled in the art could not predict which diseases out of the vast number of known substances and hypothetical diseases are encompassed by Applicant's phrase "disease". Therefore, due to the lack of guidance and the amount of experimentation required to identify diseases that are treatable with a positron-emitting compound, diseases other than renal cell carcinoma are not properly enabled by the instant specification.

103 Rejections

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 2, and 7-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mishani et al (US Patent No. 6,126,917).

Mishani et al disclose a radiolabeled compound containing at least one 18F (see entire document, especially, abstract). In addition, Mishani et al disclose (1) that the compounds of their invention can be used to treat cancers or other neoplasia characterized by elevated epidermal growth factor receptor tyrosine kinase activity (column 6, lines 32-65). (2) The compounds may be formulated into a pharmaceutical composition that is used for treatment of a disease (column 7, lines 27-43). (3) The pharmaceutical composition may be administered intravenously (column 7, lines 44-51). (4) In regards to dosage, Mishani et al disclose that persons ordinarily skilled in the art may easily determine optimum imaging doses and dosing methodology. Likewise, treatment dosing is dependent on severity and responsiveness of the condition to be treated. However, it will normally take one or more dosages a day with treatment lasting from several days to several months or until a cure is obtained or diminution of disease state is achieve. Hence, persons ordinarily skilled in the art can easily determine optimum dosages, dosing methodologies, and repetition rates (column 8,

lines 1-10). However, Mishani et al fail to disclose an example wherein the radiolabeled 18F-compound was used to treat a disease.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Mishani et al and generate a method of treating a disease by administering a positron emission because Mishani et al disclose that their invention may be used to treat diseases (column 7, lines 34-40). In addition, a skilled practitioner would be motivated to alter the dosage depending upon the severity and responsiveness of the condition to be treated which is well known in the art as indicated by Mishani et al (column 8, lines 1-10) to modify the dosage for the subject of interest.

6. Claims 1, 2, and 7-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vessella et al (EP 210,970) in view of Lemelson (US Patent no. 4,665,897) and Smith et al (The Breast, 1999, 8, 303-310) in further view of Mishani et al (US Patent No. 6,126,917).

Vessella et al disclose the detection, imaging, and therapy or renal cell carcinoma with monoclonal antibodies. The localized labeled antibodies produce a regression in the size of the carcinoma (see entire document, especially, abstract). In addition, Vessella et al disclose (1) that the monoclonal antibodies may be labeled with positron emitters for localization and/or therapy purposes. Also, fluorine-18 is listed as a possible radiolabel (column 9, lines 1-29). (2) It is possible to conjugate chemotherapeutic agents or cytotoxins to the antibodies (column 10, lines 6-9). (3)

Subjects may be injected intravenously with the labeled antibody (column 10, lines 37-41). (4) The radiolabeled tumor specific antibody may be employed to halt renal cell carcinoma growth and to induce regression and/or elimination of the tumor mass (column 11, lines 16-39; Table I, pages 9-11; Table III, pages 14-15). Vessella et al fail to disclose other possible positron emitting isotopes that may be used with their invention. In addition, the reference fails to disclose how to determine imaging and treatment amounts.

Lemelson discloses the improvements in method for treating diseases and tumors with a composition that may include monoclonal antibodies. The antibodies may be combined with radionuclides such as carbon-11 or nitrogen-3 (see entire document, especially, abstract; column 3, lines 32-47; column 8, lines 36-57).

Smith et al disclose the role of positron emission tomography in the management of breast cancer. In particular, Smith et al is of interest because it discloses radiopharmaceuticals that may be labeled with nitrogen-13, carbon-11, oxygen-15, and fluorine-18 (see entire document, especially, abstract and Table 1, page 304).

Mishani et al (see discussion above) discloses that the treatment dosing is dependent on severity and responsiveness of the condition to be treated, but will normally be one or more doses per day, with course of treatment lasting from several days to several months or until a cure is effected or a diminution of disease state is achieved. In addition, Mishani et al disclose that persons ordinarily skilled in the art can easily determine optimum dosages, dosing methodologies, and repetition rates.

Furthermore, Mishani et al disclose that person ordinarily skilled in the art can easily determine optimum nuclear imaging dosages and dosing methodology (see entire document, especially, column 8, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Vessella et al using the teachings of Lemelson, Smith et al, and Mishani et al and generate a method of treating a disease by administering a positron emission because (a) Vessella et al disclose labeled antibodies that are capable of producing a regression in the size of a tumor. The antibodies may be labeled with fluorine-18. (b) Lemelson et al disclose methods of treating diseases and tumors that may be labeled with positron emitting elements such as nitrogen-13 or carbon-11. (c) Likewise, Smith et al disclose various positron-emitting elements such as fluorine-18, carbon-11, oxygen-15, or nitrogen-13 that may be conjugated to compounds and used as radiopharmaceuticals. (d) Mishani et al disclose that their invention may be used to treat diseases (column 7, lines 34-40). Thus, a skilled practitioner in the art would be motivated to use various positron-emitting elements since it is well known in the art that the elements may be conjugated to compounds and used as radiopharmaceuticals. In addition, a skilled practitioner would be motivated to alter the dosage depending upon the severity and responsiveness of the condition to be treated which is well known in the art as indicated by Mishani et al (column 8, lines 1-10) to modify the dosage for the subject of interest.

Since each of the references disclose positron emitting elements that may be used to generate radiopharmaceuticals, the references may be considered to be within the same field of endeavor. Thus, the references are combinable.

COMMENTS/NOTES

7. It should be noted that prior art was not cited against claims 3-6. However, in order for the claims to be allowed, Applicant MUST address and overcome the 112 rejections above.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. L. Jones whose telephone number is (703) 308-4640. The examiner can normally be reached on Mon.-Fri. (alternate Mon.), 6:45 a.m. - 4:15 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jose' Dees can be reached on (703) 308- 4628. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4556 for regular communications and (703) 308-4556 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

D. L. Jones
Primary Examiner
Art Unit 1616

April 10, 2003